New IBM System x 2.5-inch 1.8 TB 10K 12 Gbps and 6 Gbps SAS HDDs and SEDs, 600 GB, 900 GB, and 1.2 TB 10K 12 Gbps SAS 512e HDDs and SEDs, and 300 GB and 600 GB 15K 12 Gbps SAS 512e HDDs, SEDs, and hybrids offer optimised storage and data management

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At a glance

IBM® 300 GB, 600 GB, 900 GB, 1.2 TB, and 1.8 TB 10,000 rpm and 15,000 rpm 12 Gbps and 6 Gbps 2.5-inch hot-swap and simple-swap SAS hard disk drives (HDDs), hybrid drives, and self-encrypting drives (SEDs) can provide multiple options to meet storage performance and capacity requirements while offering various features to address more specific needs.

These new drives are 512 emulation (512e), a new drive technology to increase drive capacity while maintaining data integrity. All SAS drives are RoHS compliant.

HDD, SED, and hybrid drive features include:

- 10,000 rpm and 15,000 rpm HDDs deliver SAS HDD reliability and largest capacity performance in the IBM HDD family.
- SAS drive-to-host interface supports up to 12.0 Gbps burst rate, which can be achieved when the drive is used on a System x® server with 12 Gbps devices and infrastructure.
- 2.5-inch, slim-line form factor optimizes storage capacity.
- Software utilities allow for Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.) to alert you of certain impending drive failures so that replacements can be made.
- Hot-swap and simple-swap versions of the IBM SAS 2.5-inch HDDs and hybrid drives are available. SEDs are available in hot-swap versions.
- One-year warranty is included.
- For optimal performance with 512e drives, the host system software stack must be 512e aware. For more information, reference IBM's Advanced Format Redpaper™ at

  http://www.redbooks.ibm.com/abstracts/redp5119.html

Hybrid drive features include:

- Formatted capacity of 300,000 MB or 600,000 MB
- 32,000 MB (32 GB) NAND flash to cache "hot data"
- Spindle speed up to 15,000 rpm
- Fine-tuning of storage tiering by caching at the I/O level

SED features include:

- Drive-level AES 256 encryption
- Safeguard against costly security breaches and exposure of proprietary data if a hard drive is stolen or lost
- Rich security options to help ensure compliance with data security, information disclosure, and privacy regulations for data at rest
- Ability to securely erase data for disk disposition, redeployment, or service calls
- Encryption functionality (supported when used in conjunction with supported ServeRAID controllers and optional Advance Feature Keys)
- MegaRAID Management Suite (MSM), which offers a quick and simple configuration path to disk encryption and also assists with local key management
- Compatibility with Security Key Lifecycle Manager (SKLM) for System x, which offers centralized, automated, and simple encryption key management of SEDs in local and distributed System x environments

Overview

As the newest additions to the IBM System x family of 2.5-inch SAS HDDs, hybrids, and SAS SEDs, the 10,000 rpm and 15,000 rpm 12 Gbps and 6 Gbps 2.5-inch hot-swap and simple-swap drives offer the high-density and high-performance drive options providing a broad selection of choices to satisfy a wide range of applications. The drives are 512 emulation (512e) a new drive format technology to increase drive capacity while maintaining data integrity. These new drives are positioned at the top of the IBM SAS HDD line.

The new 10,000 rpm and 15,000 rpm 12 Gbps and 6 Gbps SAS drives are offered in a 2.5-inch form factor. The SAS HDDs and hybrid drives are available as hot-swap and simple-swap versions. The SAS SEDs are available only as hot-swap versions.

The hybrid drives combine a cache of NAND flash and conventional media to accelerate hard disk drive performance, enabling higher I/O performance while leveraging the capacity and cost of spinning media for primary storage.

The SED is designed to reduce the vulnerability of data at rest to potentially costly exposures of proprietary data resulting from hard drives being stolen, misplaced, or improperly disposed.

Key features and benefits include:

- Increased bandwidth. 12 Gbps SAS HDD, SED, and hybrids support 12 Gbps link rates.
- Higher density. 512e SAS drives meet client requirements for larger capacities in a 2.5-inch form factor - up to 1.8 TB.
- RoHS compliance. 10,000 and 15,000 rpm 2.5-inch SAS HDD/SED drives are RoHS compliant.
- Reliability. Outstanding reliability enables operation in RAID environments without compromising application performance or availability.
- Security. The self-encrypting drives (SEDs) include drive-level AES 256 encryption. These drives are compatible with Security Key Lifecycle Manager (SKLM) for System x, which offers centralized, automated, and simple encryption key management of SEDs in local and distributed System x environments.
- Increased performance. The hybrid drives incorporate a cache of NAND flash to promote "hot data" and accelerate hard disk drive performance.

You can increase your storage and data management effectiveness when you install these new high-density SAS drives in your IBM System x configurations.

Performance characteristics for the 300 GB, 600 GB, 900 GB, 1.2 TB, and 1.8 TB drives include:

- Formatted capacity of 300,000 MB through 1,800,000 MB.

- Drive-to-host interface that supports up to 12.0 Gbps burst rate in 12 Gbps SAS drives. 12.0 Gbps burst rate SAS performance is possible when used on a System x server with 12 Gbps devices and infrastructure.
- Drive media to buffer interface that supports sustained interface data transfers of up to 230 MiB[1] per second average for 10K drives and up to 246 MiB per second average for 15K drives.
- Spindle speed of 10,000 rpm and 15,000 rpm.
- Hot-swap capability for SAS drives.
- SAS interface.

For optimal performance with 512e drives, the host system software stack must be 512e aware. For more information, reference IBM's Advanced Format Redpaper at

http://www.redbooks.ibm.com/abstracts/redp5119.html

Reliability

- SAS compliance enables these HDDs, SEDs, and hybrid drives to connect directly to selected System x systems.
- S.M.A.R.T. allows software utilities to alert you of certain impending drive failures so replacements can be made before a problem occurs.
- Rigorous testing through the ServerProven® program instills confidence that your storage subsystem[2] is compatible and will function reliably.
- These HDD, SED, and hybrid drives include a one-year, limited-warranty[3].

[1] Mebibyte is a multiple of the unit byte for digital information. The binary prefix "mebi" means 2 to the 20 power; therefore 1 mebibyte is 1,048,576 bytes. The unit symbol for the mebibyte is MiB.

[2] Refer to the following for supported products

http://www-03.ibm.com/systems/info/x86servers/serverproven/compat/us/

[3] For information on the IBM Statement of Limited Warranty, visit

http://www-947.ibm.com/systems/support/machine_warranties

Alternatively, this information is available through your IBM representative or reseller. Copies are available upon request.

With respect to on-site service, IBM sends a technician after attempting to diagnose and resolve the problem remotely.

Key prerequisites

IBM System x system with SAS capability. For optimal 12 Gbps SAS performance, an IBM System x system with 12 Gbps devices and infrastructure is required.

Planned availability date

November 14, 2014:

- IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD (00NA221)
- IBM 300GB 15K 12Gbps SAS 2.5" G3SS 512e HDD (00NA226)
- IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e HDD (00NA231)
- IBM 600GB 15K 12Gbps SAS 2.5" G3SS 512e HDD (00NA236)
- IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e HDD (00NA241)
- IBM 600GB 10K 12Gbps SAS 2.5" G3SS 512e HDD (00NA246)

- IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e HDD (00NA251)
- IBM 900GB 10K 12Gbps SAS 2.5" G3SS 512e HDD (00NA256)
- IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e HDD (00NA261)
- IBM 1.2TB 10K 12Gbps SAS 2.5" G3SS 512e HDD (00NA266)
- IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e HDD (00NA271)
- IBM 1.8TB 10K 12Gbps SAS 2.5" G3SS 512e HDD (00NA276)
- IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e SED (00NA281)
- IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e SED (00NA286)
- IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e SED (00NA291)
- IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e SED (00NA296)
- IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e SED (00NA301)
- IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e SED (00NA306)
- IBM 300GB 15K 12Gbps SAS 2.5" 512e HDD for NeXtScale System™ (00NA331)
- IBM 600GB 15K 12Gbps SAS 2.5" 512e HDD for NeXtScale System (00NA336)
- IBM 600GB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System (00NA341)
- IBM 900GB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System (00NA346)
- IBM 1.2TB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System (00NA351)
- IBM 1.8TB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System (00NA356)
- IBM 300GB 15K 12Gbps SAS 2.5" 512e SED for NeXtScale System (00NA361)
- IBM 600GB 15K 12Gbps SAS 2.5" 512e SED for NeXtScale System (00NA366)
- IBM 600GB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System (00NA371)
- IBM 900GB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System (00NA376)
- IBM 1.2TB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System (00NA381)
- IBM 1.8TB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System (00NA386)
- IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS 512e HDD (00NA441)
- IBM 1.8TB 10K 6Gbps SAS 2.5" G2SS 512e HDD (00NA446)
- IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS 512e SED (00NA476)

November 28, 2014:

- IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e Hybrid (00NA311)
- IBM 300GB 15K 12Gbps SAS 2.5" G3SS 512e Hybrid (00NA316)
- IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e Hybrid (00NA321)
- IBM 600GB 15K 12Gbps SAS 2.5" G3SS 512e Hybrid (00NA326)
- IBM 300GB 15K 12Gbps SAS 2.5" 512e Hybrid for NeXtScale System (00NA391)
- IBM 600GB 15K 12Gbps SAS 2.5" 512e Hybrid for NeXtScale System (00NA396)

Description

IBM 300 GB, 600 GB, 900 GB, 1.2 TB, and 1.8 TB 10,000 rpm and 15,000 rpm 12 Gbps and 6 Gbps SAS 2.5-inch hot-swap HDDs, hybrids, and SEDs

These new SAS HDDs provide 2.5-inch form factor options that can be used as hot-swap drives. The new HDD offerings for the IBM System x family of 2.5-inch SAS HDDs are the highest performing options and provide a wider selection of choices to satisfy a range of applications. These new drives are positioned at the top of the IBM SAS HDD and SED line based on increased capacity.

Key features and benefits include:

- 10,000 rpm and 15,000 rpm speeds to optimize performance
- Outstanding reliability that enables operation in RAID environments without compromising application performance or availability

- A 2.5-inch wide form factor that allows maximum installations in supported System x systems

Configurator support

- Configuration and Options Guide (COG)
- Stand-alone Solutions Configuration Tool (SSCT)
- IBM Advanced Solutions Integration Tool (ASIT)

Product positioning

These high-performance 10,000 rpm and 15,000 rpm 12 Gbps and 6 Gbps SAS options are positioned at the top of the IBM SAS HDD line. The SAS HDDs and hybrid drives are available as hot-swap and simple-swap versions. The SAS SEDs are available only as hot-swap versions.

These HDDs, hybrid drives, and SEDs support entry-level server and workstation applications, such as:

- Transaction processing
- Data mining
- Data warehousing
- Professional video and graphics

Product number

The following are features already announced for the 3331 machine type:

Description	Type	Mod	Feat	SEO	Part number
IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBF	00NA241	00NA241
IBM 600GB 10K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBG	00NA246	00NA246
IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBH	00NA251	00NA251
IBM 900GB 10K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBJ	00NA256	00NA256
IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBK	00NA261	00NA261
IBM 1.2TB 10K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBL	00NA266	00NA266
IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBM	00NA271	00NA271
IBM 1.8TB 10K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBN	00NA276	00NA276
IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBR	00NA291	00NA291
IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBS	00NA296	00NA296
IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBT	00NA301	00MA301
IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBU	00NA306	00NA306
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBB	00NA221	00NA221
IBM 300GB 15K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBC	00NA226	00NA226
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBD	00NA231	00NA231
IBM 600GB 15K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBE	00NA236	00NA236
IBM 300GB 15K 12Gbps SAS 2.5"	3331	HC1	ASBP	00NA281	00NA281

G3HS 512e SED					
IBM 600GB 15K 12Gbps SAS 2.5"	3331	HC1	ASBQ	00NA286	00NA286
G3HS 512e SED					
IBM 300GB 15K 12Gbps SAS 2.5"	3331	HC1	ASBV	00NA311	00NA311
G3HS 512e Hybrid					
IBM 300GB 15K 12Gbps SAS 2.5"	3331	HC1	ASBW	00NA316	00NA316
G3SS 512e Hybrid					
IBM 600GB 15K 12Gbps SAS 2.5"	3331	HC1	ASBX	00NA321	00NA321
G3HS 512e Hybrid					
IBM 600GB 15K 12Gbps SAS 2.5"	3331	HC1	ASBY	00NA326	00NA326
G3SS 512e Hybrid					
NextScale Tray					
IBM 600GB 10K 12Gbps SAS 2.5"	3331	HC1	ASC1	00NA341	00NA341
512e HDD for NeXtScale System					
IBM 900GB 10K 12Gbps SAS 2.5"	3331	HC1	ASC2	00NA346	00NA346
512e HDD for NeXtScale System					
IBM 1.2TB 10K 12Gbps SAS 2.5"	3331	HC1	ASC3	00NA351	00NA351
512e HDD for NeXtScale System					
IBM 1.8TB 10K 12Gbps SAS 2.5"	3331	HC1	ASC4	00NA356	00NA356
512e HDD for NeXtScale System					
IBM 600GB 10K 12Gbps SAS 2.5"	3331	HC1	ASC7	00NA371	00NA371
512e SED for NeXtScale System					
IBM 900GB 10K 12Gbps SAS 2.5"	3331	HC1	ASC8	00NA376	00NA376
512e SED for NeXtScale System					
IBM 1.2TB 10K 12Gbps SAS 2.5"	3331	HC1	ASC9	00NA381	00NA381
512e SED for NeXtScale System					
IBM 1.8TB 10K 12Gbps SAS 2.5"	3331	HC1	ASCA	00NA386	00NA386
512e SED for NeXtScale System					
IBM 300GB 15K 12Gbps SAS 2.5"	3331	HC1	ASBZ	00NA331	00NA331
512e HDD for NeXtScale System					
IBM 600GB 15K 12Gbps SAS 2.5"	3331	HC1	ASC0	00NA336	00NA336
512e HDD for NeXtScale System					
IBM 300GB 15K 12Gbps SAS 2.5"	3331	HC1	ASC5	00NA361	00NA361
512e SED for NeXtScale System					
IBM 600GB 15K 12Gbps SAS 2.5"	3331	HC1	ASC6	00NA366	00NA366
512e SED for NeXtScale System					
IBM 300GB 15K 12Gbps SAS 2.5"	3331	HC1	ASCB	00NA391	00NA391
512e Hybrid for NeXtScale System					
IBM 600GB 15K 12Gbps SAS 2.5"	3331	HC1	ASCC	00NA396	00NA396
512e Hybrid for NeXtScale System					
IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS	3331	HC1	ASCD	00NA441	00NA441
512e HDD					
IBM 1.8TB 10K 6Gbps SAS 2.5" G2SS	3331	HC1	ASCE	00NA446	00NA446
512e HDD					
IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS	3331	HC1	ASCF	00NA476	00NA476
512e SED					

The following are features already announced for the 3331 machine type:

Description	MT	Model	Feature
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBB
IBM 300GB 15K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBC
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBD
IBM 600GB 15K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBE
IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBF
IBM 600GB 10K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBG
IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBH
IBM 900GB 10K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBJ
IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBK
IBM 1.2TB 10K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBL
IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e HDD	3331	HC1	ASBM
IBM 1.8TB 10K 12Gbps SAS 2.5" G3SS 512e HDD	3331	HC1	ASBN
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBP
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBQ
IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBR
IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBS

IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBT
IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e SED	3331	HC1	ASBU
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e Hybrid	3331	HC1	ASBV
IBM 300GB 15K 12Gbps SAS 2.5" G3SS 512e Hybrid	3331	HC1	ASBW
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e Hybrid	3331	HC1	ASBX
IBM 600GB 15K 12Gbps SAS 2.5" G3SS 512e Hybrid	3331	HC1	ASBY
IBM 300GB 15K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	3331	HC1	ASBZ
IBM 600GB 15K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	3331	HC1	ASC0
IBM 600GB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	3331	HC1	ASC1
IBM 900GB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	3331	HC1	ASC2
IBM 1.2TB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	3331	HC1	ASC3
IBM 1.8TB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	3331	HC1	ASC4
IBM 300GB 15K 12Gbps SAS 2.5" 512e SED for NeXtScale System	3331	HC1	ASC5
IBM 600GB 15K 12Gbps SAS 2.5" 512e SED for NeXtScale System	3331	HC1	ASC6
IBM 600GB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System	3331	HC1	ASC7
IBM 900GB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System	3331	HC1	ASC8
IBM 1.2TB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System	3331	HC1	ASC9
IBM 1.8TB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System	3331	HC1	ASCA
IBM 300GB 15K 12Gbps SAS 2.5" 512e Hybrid for NeXtScale System	3331	HC1	ASCB
IBM 600GB 15K 12Gbps SAS 2.5" 512e Hybrid for NeXtScale System	3331	HC1	ASCC
IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS 512e HDD	3331	HC1	ASCD
IBM 1.8TB 10K 6Gbps SAS 2.5" G2SS 512e HDD	3331	HC1	ASCE
IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS 512e SED	3331	HC1	ASCF

Publications

Publications are shipped with the announced product.

The IBM Systems Information Centre provides you with a single information centre where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access. The IBM Systems Information Centre is at

http://publib14.boulder.ibm.com/infocenter/systems

IBM Publications Center Portal

http://www.ibm.com/shop/publications/order

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalogue of 70,000 items. Extensive search facilities are provided, as well as payment options via credit card. A large number of publications are available on-line in various file formats, which can currently be downloaded free of charge.

Installation publications ship with HDDs and SEDs.

Displayable softcopy publications

None

Source file publications

None

Services

Global Technology Services®

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an on-demand business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

http://www.ibm.com/services/

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

http://www.ibm.com/services/continuity

For details on education offerings related to specific products, visit

http://www.ibm.com/services/learning/ites.wss/zz/en?pageType=tp_search_new

Technical information

Specified operating environment

Physical specifications

- IBM 600 GB, 900 GB, 1.2 TB, and 1.8 TB 10,000 rpm 12 Gbps SAS 2.5-inch 512e hot-swap HDDs and SEDs
- Approximate height: 14.8 mm (0.58 in.)
- Approximate width: 70.0 mm (2.76 in.)
- Approximate depth: 100.6 mm (3.96 in.)
- Approximate weight: 217 g (0.48 lb) - 600 GB, 227 g (0.50 lb) - 900 GB, 227 g (0.50 lb) - 1.2 TB, 220 g (0.48 lb) - 1.8 TB

Shipping dimensions

- Approximate height: 133.0 mm (5.24 in.)
- Approximate width: 63 mm (2.48 in.)
- Approximate depth: 174 mm (6.852 in.)
- Approximate weight: 577 g (1.27 lb) - 600 GB, 587 g (1.29 lb) - 900 GB, 587 g (1.29 lb) - 1.2 TB, 580 g (1.28 lb) - 1.8 TB
- IBM 300 GB and 600 GB 15,000 rpm 12 Gbps SAS 2.5-inch 512e hot-swap HDDs and SEDs
- Approximate height: 14.8 mm (0.58 in.)
- Approximate width: 70.0 mm (2.76 in.)
- Approximate depth: 100.6 mm (3.96 in.)
- Approximate weight: 215 g (0.47 lb) - 300 GB, 221 g (0.49 lb) - 600 GB

Shipping dimensions

- Approximate height: 133 mm (5.24 in.)
- Approximate width: 63 mm (2.48 in.)

- Approximate depth: 174 mm (6.85 in.)
- Approximate weight: 575 g (1.27 lb) - 300 GB, 581 g (1.28 lb) - 600 GB

Hybrid drives - 15K

- Approximate height: 15.0 mm (0.59 in.)
- Approximate width: 69.85 mm (2.75 in.)
- Approximate depth: 100.45 mm (3.95 in.)
- Approximate weight: 225 g (0.5 lb) - 300 GB, 230 g (0.51 lb) - 600 GB

Shipping dimensions

- Approximate height: 133 mm (5.24 in.)
- Approximate width: 63 mm (2.48 in.)
- Approximate depth: 174 mm (6.85 in.)
- Approximate weight: 585 g (1.29 lb) - 300 GB, 590 g (1.30 lb) - 600 GB
- IBM 300 GB, 600 GB, 900 GB, 1.2 TB, and 1.8 TB 10,000 and 15,000 rpm 2.5-inch 512e HDDs for NextScale System
- Approximate height: 14.8 mm (0.58 in.)
- Approximate width: 70.0 mm (2.76 in.)
- Approximate depth: 100.6 mm (3.96 in.)
- Approximate weight: 215 g (0.47 lb) - 300 GB, 221 g (0.49 lb) - 600 GB, 217 g (0.48 lb) - 600 GB 10K, 227 g (0.50 lb) - 900 GB 10K, 227 g (0.50 lb) - 1.2 TB 10K, 220 g (0.48 lb) - 1.8 TB 10K

Shipping dimensions

- Approximate height: 133.0 mm (5.24 in.)
- Approximate width: 63 mm (2.48 in.)
- Approximate depth: 174 mm (6.852 in.)
- Approximate weight: 575 g (1.27 lb) - 300 GB, 577 g (1.27 lb) - 600 GB 10K, 581 g (1.28 lb) - 600 GB 15K, 587 g (1.29 lb) - 900 GB 10K, 587 g (1.29 lb) - 1.2 TB 10K, 580 g (1.28 lb) - 1.8 TB 10K

Note: All measurements are approximate.

Hardware requirements

The HDDs, SEDs and hybrid drives must be installed in selected System x servers.

For optimal performance with 512e drives, the host system software stack must be 512e aware. For more information, reference IBM's Advanced Format Redpaper at

http://www.redbooks.ibm.com/abstracts/redp5119.html

Agency approvals

- UL
- CSA
- TUV
- CE Mark
- C-Tick Mark
- Taiwan (BSMI Certification)
- Korea EMI

Standards

None

Operating environment

Temperature: 5° to 55°C (41° to 131°F) at -300 m to 3,048 m (-1000 ft to 10,000 ft)

Relative humidity: 5% to 90% (noncondensing)

Maximum altitude: 3,048 m (10,000 ft)

Homologation

This product is not certified for direct connection by any means whatsoever to interfaces of public telecommunications networks. Certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

Hardware requirements

None

Software requirements

The new IBM 10,000 rpm and 15,000 rpm SAS 2.5-inch 512e HDDs, SEDs and hybrid drives work with most operating systems.

For optimal performance with 512e drives, the host system software stack must be 512e aware. For more information, reference IBM's Advanced Format Redpaper at

http://www.redbooks.ibm.com/abstracts/redp5119.html

For further information, contact your IBM representative.

Compatibility

For latest compatibility information, visit

http://www-03.ibm.com/systems/info/x86servers/serverproven/compat/us/

Note: Some configurations may not be compatible.

Limitations

For optimal performance with 512e drives, the host system software stack must be 512e aware. For more information, reference IBM's Advanced Format Redpaper at

http://www.redbooks.ibm.com/abstracts/redp5119.html

User group requirements

This announcement satisfies or partially satisfies the requirements from one or more of the worldwide user group communities. Groups include COMMON, COMMON Europe, Guide Share Europe (GSE), InterAction (Australia/New Zealand), Japan Guide Share (JGS), and SHARE Inc.

Planning information

Customer responsibilities

The new IBM 10,000 rpm and 15,000 rpm SAS 2.5-inch hot-swap and simple-swap 512e HDDs, hybrid drives, and SED products are designated as customer setup. Customer installation instructions are included in the system publications.

Cable orders

None

Installability

IBM 300 GB, 600 GB, 900 GB, 1.2 TB, and 1.8 TB SAS 2.5-inch HDDs, SEDs, and hybrids are available as hot-swap and simple swap and are customer installable. Installation takes approximately 20 minutes.

Installation includes unpacking, setting up, and powering on.

Packaging

IBM 1.8 TB 10K, 300/600 GB 15K 2.5-inch SAS HDDs and hybrids

Product	Package description	Boxes
IBM 10,000 rpm SAS 2.5-inch HS and SS 512e HDDs and SEDs	Option Unit Box	1
IBM 15,000 rpm SAS 2.5-inch HS, SS 512e HDDs and SEDs and Hybrids	Option Unit Box	1

Contents:

Hard drive
Warranty
Safety flyer

All the SAS HDDs, SEDs and hybrid drives are shipped as a single package. Other items are in zipped bags.

Security, auditability, and control

It is a customer's responsibility to ensure that the server is secure to prevent sensitive data from being removed.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

IBM Electronic Services

Electronic Service Agent™ and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems customers. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company's strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support all at no additional cost to you.

Now integrated into the base operating system of AIX® 5.3, AIX 6.1, and AIX 7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM, which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type "smitty esa_main", and select "Configure Electronic Service Agent." In addition, ESA now includes a powerful web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more

information and documentation on how to configure and use Electronic Service Agent, refer to

http://www.ibm.com/support/electronic

The IBM Electronic Support portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled customers to track system inventory and find pertinent fixes.

Benefits

Increased uptime: The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the "symptoms," diagnosing the error, and manually calling IBM Support to open a problem record. Its 24x7 monitoring and reporting mean no more dependence on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM. The Electronic Service Agent tool securely transmits either via the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by the customer and IBM. The customer's business applications or business data is never transmitted to IBM.

More accurate reporting: Since system information and error logs are automatically uploaded to the IBM Support centre in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM, problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

Customized support: Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Support web site at

http://www.ibm.com/support/electronic

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent. Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Electronic Service Agent information that has been collected from your system, customers are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, contact your IBM Systems Services Representative, or visit

http://www.ibm.com/support/electronic

Terms and conditions

Terms and conditions features section

MES discount applicable

No

Field installable feature

Yes

Warranty period

One year

An IBM part or feature installed during the initial installation of an IBM machine is subject to a full warranty effective on the date of installation of the machine. An IBM part or feature that replaces a previously installed part or feature assumes the remainder of the warranty period for the replaced part or feature. An IBM part or feature added to a machine without replacing a previously installed part or feature is subject to a full warranty effective on its date of installation. Unless specified otherwise, the warranty period, type of warranty service, and service level of a part or feature are the same as those for the machine in which it is installed.

Customer setup

Yes

Machine code

No license terms apply

Optional features warranty period

One year

Prices

For current prices, contact IBM at 888-Shop-IBM (746-7426) or visit

http://www-03.ibm.com/systems/ca/en/x/

To locate the web price, search on the feature number in the Search field.

Description	Part number
IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e HDD	00NA241
IBM 600GB 10K 12Gbps SAS 2.5" G3SS 512e HDD	00NA246
IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e HDD	00NA251
IBM 900GB 10K 12Gbps SAS 2.5" G3SS 512e HDD	00NA256
IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e HDD	00NA261
IBM 1.2TB 10K 12Gbps SAS 2.5" G3SS 512e HDD	00NA266
IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e HDD	00NA271
IBM 1.8TB 10K 12Gbps SAS 2.5" G3SS 512e HDD	00NA276
IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e SED	00NA291
IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e SED	00NA296
IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e SED	00NA301
IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e SED	00NA306
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD	00NA221
IBM 300GB 15K 12Gbps SAS 2.5" G3SS 512e HDD	00NA226
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e HDD	00NA231
IBM 600GB 15K 12Gbps SAS 2.5" G3SS 512e HDD	00NA236
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e SED	00NA281
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e SED	00NA286
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e Hybrid	00NA311
IBM 300GB 15K 12Gbps SAS 2.5" G3SS 512e Hybrid	00NA316
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e Hybrid	00NA321
IBM 600GB 15K 12Gbps SAS 2.5" G3SS 512e Hybrid	00NA326

IBM 600GB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	00NA341
IBM 900GB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	00NA346
IBM 1.2TB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	00NA351
IBM 1.8TB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	00NA356
IBM 600GB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System	00NA371
IBM 900GB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System	00NA376
IBM 1.2TB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System	00NA381
IBM 1.8TB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System	00NA386
IBM 300GB 15K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	00NA331
IBM 600GB 15K 12Gbps SAS 2.5" 512e HDD for NeXtScale System	00NA336
IBM 300GB 15K 12Gbps SAS 2.5" 512e SED for NeXtScale System	00NA361
IBM 600GB 15K 12Gbps SAS 2.5" 512e SED for NeXtScale System	00NA366
IBM 300GB 15K 12Gbps SAS 2.5" 512e Hybrid for NeXtScale System	00NA391
IBM 600GB 15K 12Gbps SAS 2.5" 512e Hybrid for NeXtScale System	00NA396
IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS 512e HDD	00NA441
IBM 1.8TB 10K 6Gbps SAS 2.5" G2SS 512e HDD	00NA446
IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS 512e SED	00NA476

Field install only	Plant install only	MES removal	Cables required
N	N	N	N

If field installed on a purchased machine, parts removed or replaced become the property of IBM and must be returned.

The following are features already announced for the 3331 machine type:

Description	Model number	Feature number	Initial/ MES/ Both support	CSU	RP MES
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e HDD	HC1	ASBB	MES		
IBM 300GB 15K 12Gbps SAS 2.5" G3SS 512e HDD	HC1	ASBC	MES		
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e HDD	HC1	ASBD	MES		
IBM 600GB 15K 12Gbps SAS 2.5" G3SS 512e HDD	HC1	ASBE	MES		
IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e HDD	HC1	ASBF	MES		
IBM 600GB 10K 12Gbps SAS 2.5" G3SS 512e HDD	HC1	ASBG	MES		
IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e HDD	HC1	ASBH	MES		
IBM 900GB 10K 12Gbps SAS 2.5" G3SS 512e HDD	HC1	ASBJ	MES		
IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e HDD	HC1	ASBK	MES		
IBM 1.2TB 10K 12Gbps SAS 2.5" G3SS 512e HDD	HC1	ASBL	MES		

IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e HDD
HC1 ASBM MES
IBM 1.8TB 10K 12Gbps SAS 2.5" G3SS 512e HDD
HC1 ASBN MES
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e SED
HC1 ASBP MES
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e SED
HC1 ASBQ MES
IBM 600GB 10K 12Gbps SAS 2.5" G3HS 512e SED
HC1 ASBR MES
IBM 900GB 10K 12Gbps SAS 2.5" G3HS 512e SED
HC1 ASBS MES
IBM 1.2TB 10K 12Gbps SAS 2.5" G3HS 512e SED
HC1 ASBT MES
IBM 1.8TB 10K 12Gbps SAS 2.5" G3HS 512e SED
HC1 ASBU MES
IBM 300GB 15K 12Gbps SAS 2.5" G3HS 512e Hybrid
HC1 ASBV MES
IBM 300GB 15K 12Gbps SAS 2.5" G3SS 512e Hybrid
HC1 ASBW MES
IBM 600GB 15K 12Gbps SAS 2.5" G3HS 512e Hybrid
HC1 ASBX MES
IBM 600GB 15K 12Gbps SAS 2.5" G3SS 512e Hybrid
HC1 ASBY MES
IBM 300GB 15K 12Gbps SAS 2.5" 512e HDD for NeXtScale System
HC1 ASBZ MES
IBM 600GB 15K 12Gbps SAS 2.5" 512e HDD for NeXtScale System
HC1 ASC0 MES
IBM 600GB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System
HC1 ASC1 MES
IBM 900GB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System
HC1 ASC2 MES
IBM 1.2TB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System
HC1 ASC3 MES
IBM 1.8TB 10K 12Gbps SAS 2.5" 512e HDD for NeXtScale System
HC1 ASC4 MES
IBM 300GB 15K 12Gbps SAS 2.5" 512e SED for NeXtScale System
HC1 ASC5 MES
IBM 600GB 15K 12Gbps SAS 2.5" 512e SED for NeXtScale System
HC1 ASC6 MES
IBM 600GB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System
HC1 ASC7 MES
IBM 900GB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System
HC1 ASC8 MES
IBM 1.2TB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System
HC1 ASC9 MES
IBM 1.8TB 10K 12Gbps SAS 2.5" 512e SED for NeXtScale System
HC1 ASCA MES
IBM 300GB 15K 12Gbps SAS 2.5" 512e Hybrid for NeXtScale System
HC1 ASCB MES
IBM 600GB 15K 12Gbps SAS 2.5" 512e Hybrid for NeXtScale System
HC1 ASCC MES
IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS 512e HDD
HC1 ASCD MES
IBM 1.8TB 10K 6Gbps SAS 2.5" G2SS 512e HDD
HC1 ASCE MES
IBM 1.8TB 10K 6Gbps SAS 2.5" G2HS 512e SED
HC1 ASCF MES

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